Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
Amendment of the Commission's Rules Regarding Maritime Automatic Identification Systems	)	WT Docket No. 04-344
	)	
Petition for Rule Making Filed by National Telecommunications and Information Administration	)	RM-10821
	)	
Amendment of the Commission's Rules Concerning Maritime Communications	)	PR Docket No. 92-257

Reply Comments of ORBCOMM

Pursuant to Sections 1.415 and 1.419 of the Commission's Rules, 47 C.F.R. §§ 1.415 and 1.419, ORBCOMM Inc. ("ORBCOMM") hereby replies to the comments submitted in response to the Further Notice of Proposed Rulemaking in this proceeding.[1] The comments were nearly unanimous in their support for an allocation of VHF maritime Channel 87B (161.975 MHz) exclusively to Automatic Identification Systems ("AIS") on a nationwide basis, not just in the nine VHF public coast service areas ("VPCSAs") originally proposed by the Commission. The lone exception was MariTEL, Inc. ("Maritel"), but as demonstrated below, its objections to such an allocation are without merit.

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[1] *Amendment of the Commission's Rules Regarding Maritime Automatic Identification Systems*, 21 FCC Rcd 8892 (2006) at ¶¶ 51-52 (hereafter cited as "*AIS Order and Further NPRM*"); 71 Fed Reg 60102-06 (October 12, 2006).

In its comments, ORBCOMM demonstrated how satellite monitoring of AIS signals would well serve the public interest by facilitating the U.S. Coast Guard's ability to monitor ships at sea within 2,000 miles of the United States – a capability that terrestrial towers could not match. ORBCOMM also explained how allowing non-AIS services in the "inland" VPCSAs would likely degrade the satellite AIS-monitoring capabilities even with respect to ships far from shore, because of the 3,000 mile "footprint" of the satellite monitoring the AIS transmissions.

The overwhelming majority of the commenters agreed with ORBCOMM that a nationwide allocation of Channel 87B for AIS was necessary to allow the U.S. Coast Guard reliably to monitor AIS transmissions. The commenters cited the potential impact on satellite monitoring,[2] as well as the potential interference to terrestrial monitoring of AIS due to "ducting," which can extend non-AIS signals hundreds of miles.[3] The lone dissenter from this call for a nationwide allocation of Channel 87B for AIS was Maritel.

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[2] ACR Electronics, Inc. Comments at p. 1; American Waterways Operators Comments at p. 3; GMDSS Task Force Comments at p. 3; Radio Technical Commission for Maritime Services Comments at p. 5; Shine Micro Inc. Comments at pp. 1-2.

[3] American Pilots' Association Comments at p. 2; American Waterways Operators Comments at p. 3; International Association of Marine Aids to Navigation and Lighthouse Authorities Comments at p. 2; Nautical Institute Comments at p. 1; Radio Technical Commission for Maritime Services Comments at p. 4.

Maritel begins its argument by selectively quoting from the *AIS Order and Further NPRM*, omitting language in order to create the impression that there was no record evidence to support the Commission's proposal. Below is the full text of the relevant paragraph, with the portions that had been omitted from Maritel's pleading italicized and in bold:

> ***We believe that it would be beneficial and prudent to augment the record on this important question of whether to expand the exclusive use of Channel 87B for AIS beyond the nine maritime VPCSAs, as initially contemplated, before taking final action on this issue. NTIA's request for a nationwide AIS allocation is now based to a significant degree on the need to protect satellite AIS systems, but NTIA advanced this justification for the first time in its comments to the AIS NPRM. As a result,*** the existing record provides almost no information regarding the technical feasibility, effectiveness or potential benefits of satellite AIS, and no studies or analysis of potential interference to and from satellite AIS. We are not convinced, based on the current record, that we should depart from the Commission's earlier determinations limiting the scope of the AIS set-aside. ***On the other hand, neither do we believe that we can affirm our tentative conclusion in the AIS NPRM, that the public interest would not be served by extending AIS use of Channel 87B to inland areas, without further review of this new development. It appears that satellite AIS may significantly expand the range at which vessels may be effectively identified and tracked. Such an expansion of AIS vessel tracking capabilities could promote and enhance maritime domain awareness. Accordingly, we invite comment in the Further Notice on issues pertaining to satellite AIS, and further comment more generally on the geographic scope of the AIS set-aside.***[4]

In its previous comments filed in response to the original Notice of Proposed Rulemaking in this proceeding, ORBCOMM had discussed the potential

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[4] *Compare, AIS Order and Further NPRM* at ¶ 52, *with* Maritel Comments at p. 3.

impact of non-AIS transmissions on satellite monitoring of AIS signals.[5] Moreover, ORBCOMM's initial comments in response to the *AIS Order and Further NPRM* provided additional details with regard to both the expected benefits of satellite monitoring of AIS signals, as well as the likelihood of interference from non-AIS transmissions that will be operating at up to four times the power levels of the AIS transmissions.[6] Indeed, contrary to Maritel's claim that "there is no evidence that space-based monitoring will provide the Coast Guard with any more information than it would otherwise receive from terrestrial monitoring",[7] ORBCOMM has demonstrated that satellites are uniquely able to monitor ships far out at sea.[8] Thus, satellite monitoring is critical to the U.S. Coast Guard's domain awareness program that incorporates wide area surveillance of passenger and cargo vessels over 65' in length within 2,000 nautical miles of the United States, a mandate of the Maritime Transportation Security Act of 2002.[9]

Likewise without merit is Maritel's claim that "there is no evidence that the Coast Guard or the National Telecommunications and Information

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[5] ORBCOMM Comments, filed January 31, 2005 at p. 3-4.

[6] ORBCOMM Comments, filed November 13, 2006 at pp. 4-7.

[7] Maritel Comments at p. 3.

[8] ORBCOMM Comments at pp. 3-4.

[9] Public Law 107-295, 116 Stat. 2109 (November 25, 2002); 47 U.S.C. § 70115. *See also*, NTIA Comments in WT Docket No. 04-344 at p. 24; Testimony of Mr. Jeffrey P. High before the Subcommittee on Coast Guard & Maritime Transportation, U.S. House of Representatives, October 6, 2004.

Administration ("NTIA") is actually in the process of developing any particular satellite-based AIS system."[10] In its comments filed in this proceeding in 2005, ORBCOMM had described its contract with the U.S. Coast Guard to deploy a satellite to demonstrate the capabilities of low-Earth orbit satellites to monitor of AIS signals.[11] ORBCOMM is scheduled to launch that satellite early next year. Indeed, the *AIS Order and Further NPRM* discusses this activity.[12] Maritel simply ignores this record information.

Maritel goes on to claim that even assuming *arguendo* there is a public interest in satellite monitoring of AIS signals, it is unnecessary to preclude non-AIS transmissions in Channel 87B in areas "distant from the shoreline and navigable waterways."[13] Indeed, Maritel suggests that portions of VPCSAs 1-9 could be used for land mobile services without causing harmful interference to AIS monitoring.[14] Maritel glosses over the potential "pollution" of the AIS monitoring by suggesting that the satellites simply monitor the AIS transmissions and ignore the non-AIS signals generated

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10 Maritel Comments at pp. 3-4.

11 ORBCOMM Comments, filed January 31, 2005 at p. 2.

12 *AIS Order and Further NPRM* at ¶ 51.

13 Maritel Comments at p. 4.

14 Maritel Comments at p. 5.

from other users. Maritel's comments demonstrate a profound misunderstanding of the potential interference concerns at issue here.

The non-AIS transmissions would be on the same frequency and at up to four times the power levels of the AIS signals. The satellites will have a footprint of roughly 3,000 miles, and thus there will be geographic overlap of the wanted and unwanted signals as well, even if those non-AIS transmissions are well "inland." Because ORBCOMM knows of no way to "filter out" the unwanted signals, a non-AIS transmission occurring at the same time as an AIS signal will prevent the satellite from "hearing" the AIS transmission. Particularly in light of the fact that there is no centralized coordination amongst the AIS transmissions, ORBCOMM does not know of any means by which there could be coordination between the AIS signals and the non-AIS transmissions so as to avoid simultaneous transmissions.[15] Moreover, the problem would be exacerbated by Maritel's suggestion that Channel 87B in portions of VPCSAs 1-9 be opened up for non-AIS

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[15] In some unlicensed contexts the Commission requires use of a "listen-before-talk" protocol to minimize harmful interference. Such a method would not work in this case, however, because the AIS signals could be well outside the range at which another terrestrial system could "hear" the AIS transmissions, but the satellite would still "hear" both signals. Thus, the terrestrial non-AIS station would transmit because it would not observe any "competing" AIS signals, but the resulting interference would preclude the satellite from "hearing" the AIS transmission. In addition, while it might be possible to allow non-AIS transmissions if they were significantly below the power levels of AIS transmissions (on the order of 0.1 Watts), ORBCOMM does not believe that such a limited "inland" terrestrial service would be economically viable.

transmissions, because the increased non-AIS traffic in this channel would cause even greater interference to the AIS monitoring by the satellites.

In light of the overwhelming support for the nationwide allocation of Channel 87B for AIS transmissions, and the lack of merit to the lone dissent filed by Maritel, ORBCOMM urges the Commission expeditiously to allocate this channel to AIS throughout the country, not simply in VPCSAs 1-9. Such action will support the U.S. Coast Guard's critical homeland security mission and thus well serve the public interest. .

Respectfully submitted,

By /s/

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